STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

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March 15, 2002 **Final**

MEMORANDUM

TO: The Public at Large
DEQ Staff

FROM: David Mabe, State Water Quality Programs Administrator

SUBJECT: Idaho Department of Environmental Quality (DEQ) Wastewater Program Guidance -
Approval of **Private Community or Central System Wastewater Treatment Plants** with either a surface water discharge, a discharge to land application, or a discharge to a drainfield.

The purpose of this document is to establish guidance on requirements for approval of **private community or central system wastewater treatment plants**. Individual extended treatment package systems are covered by the Technical Guidance Manual for Individual and Subsurface Sewage Disposal (TGM).

DISCUSSION

DEQ is establishing this guidance for the review and approval of private wastewater treatment plants. Private community or central system wastewater treatment plants may be considered if no other viable alternative is available. The use of these systems shall be fully protective of Ground Water Quality Standards. Without reliable facilities, certified operators, and proper operation and maintenance, these types of systems have a high risk of failure. Failure can cause odor problems and public health hazards. The use of this guidance should minimize the risk to public health and the environment.

GUIDANCE

Preliminary Engineering Report

1) A preliminary engineering report per the outline of Ten States Standards must be provided.

2) As a minimum, the report will evaluate the following alternatives:

a) wastewater treatment plants (possibly several brands)
b) self-contained lagoon
c) conventional septic tank and drainfield (or alternate drainfield design)
d) surface water discharge including impact on TMDL
e) gravity or pressure sewer into nearby community (see DEQ guidance on distances to community systems and required hook-up)
f) recirculating or intermittent sand filter
g) annual O&M costs
h) land application

3) The report must present capital and O&M costs, monitoring requirements and reporting, preliminary sizing (design criteria), hydrogeologic studies, bonding, the O&M manual, District Health Department (DHD) requirements (nutrient/pathogen study), and all DEQ requirements per this Water Quality Program Guidance.

4) The report must thoroughly analyze the effect of the treatment plant discharge on groundwater quality, especially bacteria, viruses, phosphorus and nitrates as compared to the other alternatives.

Plan and Specification Approval

1) Plans and Specifications for the collection and treatment systems will not be approved until the Owner is in receipt of one of the following (whichever is applicable): a draft NPDES permit from EPA for surface water discharges, a draft Wastewater Land Application Permit from DEQ, or a subsurface treatment and distribution permit from the District Health Department (DHD).

2) For private wastewater treatment plants storing their treated effluent prior to irrigation or surface water discharge, the following additional items will be considered by DEQ, prior to approving either the treatment systems or the disposal option. These include, but are not limited to 1) sealing of storage ponds; 2) filtration and disinfection requirements just prior to irrigation use or surface water discharge; 3) the degree of treatment and the intended type and area of irrigation (reference Idaho Land Application of Wastewater Rules).

Private Wastewater Treatment Plants

1) The wastewater treatment plant must be NSF approved or equivalent and the plant shall have at least two full years of operating data on five (5) separate installations in the United States. The data submittal shall include the name, address, and telephone number for a regulatory agency contact person familiar with the performance of each reported installation. Data should be submitted to the Technical Guidance Committee (TGC) for approval through the established process for individual package treatment plants with septic tanks and drainfields.

2) The owner will provide for a minimum of a Class II operator in responsible charge of the facility. If the operator is provided by contract, the contract shall be submitted to DEQ for review and approval.

3) A sludge management plan must be submitted to and approved by DEQ. The plan must include collection, treatment and disposal of the sludge.

4) The wastewater treatment plant shall be a dual train type (or equivalent / greater) with redundant pumps and blowers from influent works to the disposal site. Standby or emergency power shall be provided to fully operate the package treatment plant during a power outage unless the water system would also be out during a power outage.

5) A Stipulated Plan and Specification Approval (SPSA) similar to a consent order will be considered for each wastewater treatment plant approved. Alternately, these are called "Agreements regarding Plan and Specification Approval". If a wastewater treatment plant installation is only a temporary or interim measure in a long-term plan, a SPSA is mandatory and will include a sunset clause with a date for the wastewater treatment plant to cease operation. The SPSA will require the wastewater treatment system entity to fund and construct the eventual hookup to the municipal system when it becomes available. "Available" shall be defined per the "Reasonable Access" section of the Idaho Subsurface Sewage Treatment and Distribution Rules.

6) The engineer must provide a detailed Operation and Maintenance (O&M) Manual.

7) A financial management plan shall be provided to show how the financial management of the system will occur. This will explain the formation of a required maintenance entity to provide continued funding, operation and maintenance of the wastewater treatment plant and drainfields. The entity shall have the authority to collect fees for O & M, including additional money for a sinking fund for replacement costs and for possible future connection to an available municipal system.

8) A performance bond, maintenance bond, or cash reserve (one year of O&M costs) fund is required to ensure continuous and adequate operation and maintenance.

<u>Private Wastewater Treatment Plants with drainfields</u>

1) The local District Health Department (DHD) has delegated approval authority from DEQ for the subsurface drainfield.

2) For discharge to a reduced size drainfield the wastewater treatment plant must achieve an 85% reduction of Biochemical Oxygen Demand (BOD) and suspended solids. A sand filtration system following the wastewater treatment plant must be provided prior to discharge of the effluent to the drainfield.

3) For flow equalization ahead of the wastewater treatment plant a properly sized tank with appropriate pumping should be provided.

For a fully sized drainfield, an alternative to sand filtration could be to provide a properly sized effluent settling tank with a portable coagulant dispenser, rapid mixing chamber and flocculation chamber following the wastewater treatment plant to accelerate suspended solids settling in the settling tank.

Following the settling tank, a vault containing a 1/8-inch effluent screen and a high water alarm shall be provided to protect the drainfield from solids overflow following a possible system upset.

4) Wastewater Treatment Plant effluent limitations for a discharge to a drainfield will be dictated in the approval letter, SPSA, or the DHD permit. The following limitations are representative.

BOD5 - Monthly Average 30 mg/l and Weekly Average 45 mg/l
Suspended Solids - Monthly Average 30 mg/l and Weekly Average 45 mg/l

(Monthly Average is average of weekly samples in any given month).

5) A monthly operating report will be required to include the monitoring requirements (from a 24-hour composite sampler) listed in the approval letter, DHD permit, or SPSA. The following limitations are representative.

Influent or effluent flow - continuous recording (min, max, and monthly average)
Influent BOD5 - Weekly
Effluent BOD5 - Weekly
Influent Total Suspended Solids - Weekly
Effluent Total Suspended Solids - Weekly
Per cent BOD5 Removal - Weekly
Per cent Total Suspended Solids Removal – Weekly

6) For a discharge to a drainfield a DHD permit will be necessary. If the effluent limitations and monitoring requirements are not included in their permit, limits and requirements will be included in the SPSA.

<u>Private Wastewater Treatment Plants discharging to Surface Water</u>

1) For a facility discharging to surface water, a NPDES permit is required. The State will not issue SPSA's in place of NPDES permits. EPA issues NPDES Permits.

2) For a discharge to surface water, monitoring for E. coli or total coliform bacteria will also be necessary. In many cases, the monitoring may need to include nutrients, ammonia, chlorine, and heavy metals.

3) A water quality limited stream segment may demand water quality based effluent limitations. Possible TMDL limitations may also impact some surface water discharges.

Private Wastewater Treatment Plants discharging to a Land Application Site

1) A land application permit would have to be issued for land application of the effluent. Some of the effluent limitations and monitoring requirements for the wastewater treatment plant and other stipulations normally in an SPSA may be more appropriately included in the land application permit.

2) For a discharge to a land application site, treatment and monitoring requirements will be established in the land application permit. See the "Handbook for Land Application of Municipal and Industrial Wastewater".